

CLAIMS

What is claimed is:

1. A wireless communication system comprising;
at least one wireless transmit/receive unit (WTRU);
at least one base station; and
at least one radio network controller (RNC), said RNC configured to evaluate resources in said WTRU's serving cell to determine whether the number of timeslots assigned to said WTRU may be reduced and further configured to reduce the number of timeslots where said determination is positive;
said RNC further configured to reassign resources in neighboring cells to reduce the amount of interference imparted on said serving cell by said neighboring cells and to reevaluate reduction of timeslots in said serving cell where resources in said neighboring cells have been reassigned and the number of timeslots were not previously reduced; and
said RNC further configured to reassign resources in said serving cells to reduce the amount of interference in said serving cell and to reevaluate reduction of timeslots in said serving cell where resources in said serving cell have been reassigned and the number of timeslots were not previously reduced.
2. The system of claim 1 wherein the RNC, after evaluating resources in said neighboring cells, waits a predetermined amount of time, checks whether conditions have changed, and checks again whether timeslots assigned to said WTRU in said WTRU's serving cell may be reduced.
3. The system of claim 1 wherein the at least one RNC is a local area network and the at least one base station is an access point.

4. A wireless communication system wherein an at least one wireless transmit/receive unit (WTRU) is operating within a serving cell wherein said serving cell is receiving interference from neighboring cells, the system comprising;

at least one radio network controller (RNC), said RNC configured to evaluate resources in said WTRU's serving cell to determine whether the number of timeslots assigned to said WTRU may be reduced and further configured to reduce the number of timeslots where said determination is positive;

said RNC further configured to reassign resources in neighboring cells to reduce the amount of interference imparted on said serving cell by said neighboring cells and to reevaluate reduction of timeslots in said serving cell where resources in said neighboring cells have been reassigned and the number of timeslots were not previously reduced; and

said RNC further configured to reassign resources in said serving cells to reduce the amount of interference in said serving cell and to reevaluate reduction of timeslots in said serving cell where resources in said serving cell have been reassigned and the number of timeslots were not previously reduced.

5. The system of claim 4 wherein the RNC, after evaluating resources in said neighboring cells, waits a predetermined amount of time, checks whether conditions have changed, and checks again whether timeslots assigned to said WTRU in said WTRU's serving cell may be reduced.

6. The system of claim 4 wherein the at least one RNC is a local area network.

7. A method for optimizing resource management in wireless communication systems, the method comprising the steps of:

performing a first evaluation of resources in a serving cell of a wireless transmit/receive unit (WTRU);

performing a first determination based on said first evaluation whether the number of timeslots assigned to said WTRU may be reduced;

reducing the number of timeslots where said first determination is positive;

performing a second evaluation of resource allocation in at least one neighboring cell where said first determination is negative;

performing a second determination based on said second evaluation whether resources in the at least one neighboring cell may be reassigned to reduce interference in said serving cell;

reassigning resources in the at least one neighboring cell and repeating said first evaluation and first determination where said second determination is positive;

performing a third evaluation of resource allocation in said serving cell where said second determination is negative;

performing a third determination based on said third evaluation whether resources in said serving cell may be reassigned to reduce interference in said serving cell; and

reassigning resources in said serving cell and repeating said first evaluation and first determination where said third determination is positive.

8. The method of claim 7 wherein a predetermined delay is provided before performing the third evaluation to provide an opportunity for conditions in the serving cell to change and performing said first evaluation and first determination a predetermined number of times prior to returning to the third evaluation.

9. The method of claim 7 wherein resource allocations are updated after any resources are reassigned to lower interference in said serving cell.

10. The method of claim 7 wherein the method is implemented in a wireless communication system including at least one access point and a local area network.

11. The method of claim 7 wherein the method is implemented in a wireless communication system including at least one base station and at least one radio network controller.

12. A method for optimizing resource management in wireless communication systems, the method comprising the steps of:

reducing the number of timeslots assigned to a wireless transmit/receive unit (WTRU) where reduction of timeslots does not result in a predetermined maximum level of interference being exceeded in any timeslot;

reassigning resources in neighboring cells to lower interference in the serving cell where reduction of timeslots causes the predetermined maximum level to be exceeded in any timeslot and repeating the step of reducing the number of timeslots assigned to the WTRU; and

reassigning resources in the serving cell to lower interference in the serving cell where reduction of timeslots still causes the predetermined maximum to be exceeded despite reassigning resources in the neighboring cells and again repeating the step of reducing the number of timeslots assigned to the WTRU.

13. The method of claim 12 wherein a predetermined delay is provided before reassigning resources in the serving cell to provide an opportunity for conditions in the serving cell to change and repeating the step of reducing the number of timeslots assigned to the WTRU a predetermined number of times prior to attempting to reassign resources in the serving cell.

14. The method of claim 12 wherein resource allocations are updated after any resources are reassigned to lower interference in said serving cell.

15. The method of claim 12 wherein the method is implemented in a wireless communication system including at least one access point and a local area network.

16. The method of claim 12 wherein the method is implemented in a wireless communication system including at least one base station and at least one radio network controller.